



CERES Data Management Group Status Report

Earth Radiation Budget Workshop
CERES Technical Session

October 19th, 2016

Jonathan Gleason



Data Management Team

**Systems/
Optimization:**
Nelson Hillyer
Josh Wilkins
Mike Linsinbigler

**Production /
Optimization:**
Lisa Coleman
Carla Grune

Instrument:
Denise Cooper
Thomas Grepotis
Dianne Snyder

Convolution:
Igor Antropov

Inversion:
Victor Sothcott

**Product Web
Support:**
Churngwei Chu
Ed Kizer
Cristian Mitrescu

**Configuration
Management:**
Tammy Ayers
Joanne Saunders

ERBE-like:
Dale Walikainen
Jeremie Lande

SARB:
Tom Caldwell

Task Manager:
Walt Miller

Clouds:
Sunny Sun-Mack
Ricky Brown
Yan Chen
Liz Heckert
Rita Smith
Sharon Gibson

TISA Gridding:
Raja Raju
Forrest Wrenn

TISA Averaging:
Cathy Nguyen
Dennis Keyes



Overview

- Recent DMT Activity
- Data Availability
- CATALYST Status
- Input Data Changes
- Planned Reprocessing Activities
- Atlassian Tools: Jira & Bitbucket



Recent DMT Activity



Recent Activity

48 software & data deliveries since April 26th, 2016 STM

- **CATALYST (16)**
 - 4 - Server & Ops Console updates
 - 5 - Ed4 PGE Handlers modules
 - 7 - Log DB patches
 - Configuration file update
- **PR Tool (7)**
 - 3 - CATALYST Support
 - 2 – Support PGE modifications
 - 2 – Misc. updates
- **Instrument (4)**
 - Code update - add FM6 functionality
 - 3 - PGE consolidation deliveries
- **Clouds (1)**
 - PCF update to handle VIIRS file format
- **TISA Gridding (1)**
 - Cld-Type-Hist script updates
- **TISA Averaging (2)**
 - Ed4 SSF1deg-Day/Month PGE update
 - Ed4 TSI NB->BB PGE update
- **Ancillary File Deliveries (17)**
 - 5 Gain file deliveries (Ed3/Ed4/Ed1-NPP)
 - 4 Ed3 & Ed4 SRF files
 - 3 GGEO, 3 MATCH aerosol, 2 SORCE



Data Product Availability



Edition 3 Product Availability

Product	Platform	Processed through	Publicly Available
BDS	Terra & Aqua	May 31 st , 2016	Yes
SSF	Terra & Aqua	May 31 st , 2016 (FM1 & FM3 only)	Yes
SFC	Terra & Aqua	April 2016	Yes
SSF1deg-Month SSF1deg-Day	Terra & Aqua	April 2016	Yes
SYN1deg	Terra + Aqua	April 2016	Yes
ISCCP-D2like-Day/Nit	Terra & Aqua	April 2016	Yes
ISCCP-D2like-GEO	GEO	May 2016	Yes
ISCCP-D2like-Mrg	Terra + Aqua + GEO	May 2016	Yes
SSF Edition 1-CV	Terra & Aqua	August 31 st , 2016	No

Edition3 Stream June and July 2016 will be processed shortly after STM



Edition 4 Product Availability

Product	Platform	Processed Through	Current	Publicly Available
BDS	Terra & Aqua	May 31 st , 2016	Yes	Yes
SSF	Terra & Aqua	May 31 st , 2016	Yes	Yes
SSF1deg-Hour	Terra & Aqua	April 2016	Yes	Yes
SSF1deg-Day/Month*	Terra & Aqua	November, 2015*	December 2016	Yes
SYN1deg**	Terra + Aqua	July 2002 – December 2014	March 2017	No
CldTypHist	Terra + Aqua	March 2000 – June 2015	March 2017	No

* SSF1deg-Day/Month to be reprocessed with updated code

**SYN1deg stream to be partially rerun with existing SYN1



SNPP Edition 1 Product Availability

Product	Platform	Processed Through	Current?	Publicly Available
BDS	S-NPP	August 31 st , 2016	Yes	Yes
SSF		March 31 st , 2016*	October 2016	Yes
SSF1deg-Hour		November 2015	October 2016	Yes
SSF1deg-Day/Month		November 2015	October 2016	No

- Have gains and VIIRS data to support processing through August 2016, need MATCH for June and July 2016
- Land SIPS transition to EDOS caused delay in receipt of VIIRS data – Expected current this month



CERES AuTomAted job Loading sYSTem (CATALYST) Status



CATALYST Release Timeline

CATALYST Release 1.0

- Promoted to operations April 2014
- Initial version to only process Beta2-Ed4 Clouds and Inversion code

CATALYST Release 2.0

- Promoted to operations January 2016
- Enables plug-in modules for remaining PGEs
- Included significant server improvements for maintainability and sustainability
- Implements several user requested features for increased usability

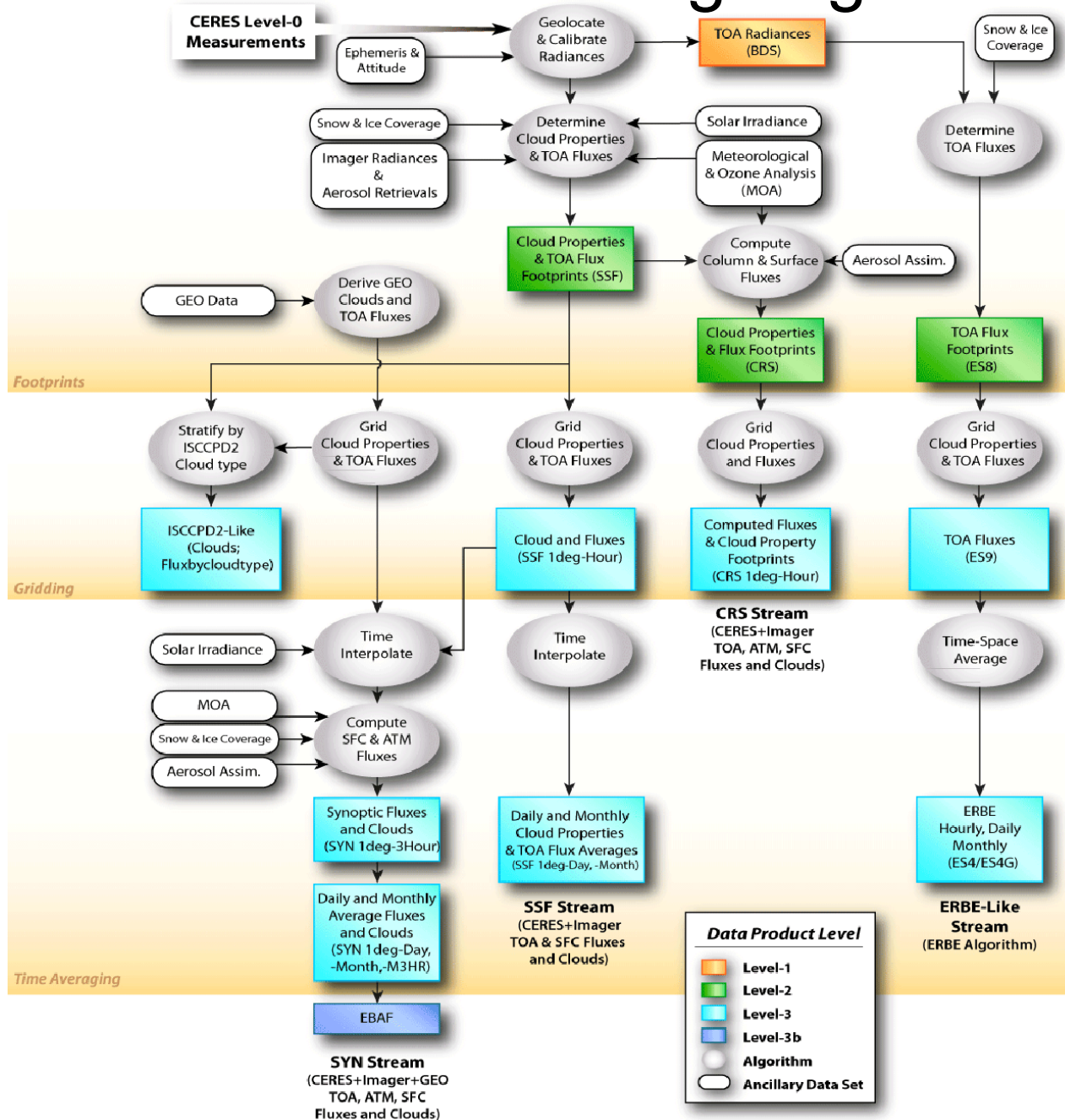


CATALYST Release Timeline

CATALYST Release 2.1

- Delivered October 2016 (Ops is December)
- Add functionality to utilize data center archive in addition to LogDB to ID “known missing” granules – minimizes DB sync deliveries
- Adds several user requested features
 - New displays of running jobs
 - Added flexibility for exception case type PRs
- Improved Operator Console installation package
- Various bug fixes in server and UI

CERES Processing Organization





PGE Migration Plan

Edition 4 SSF Stream: Completed April 2016

- 4.5-6.0P6
- 4.5-6.1P6
- Handler testing enabled discovery of PGE issues early in process

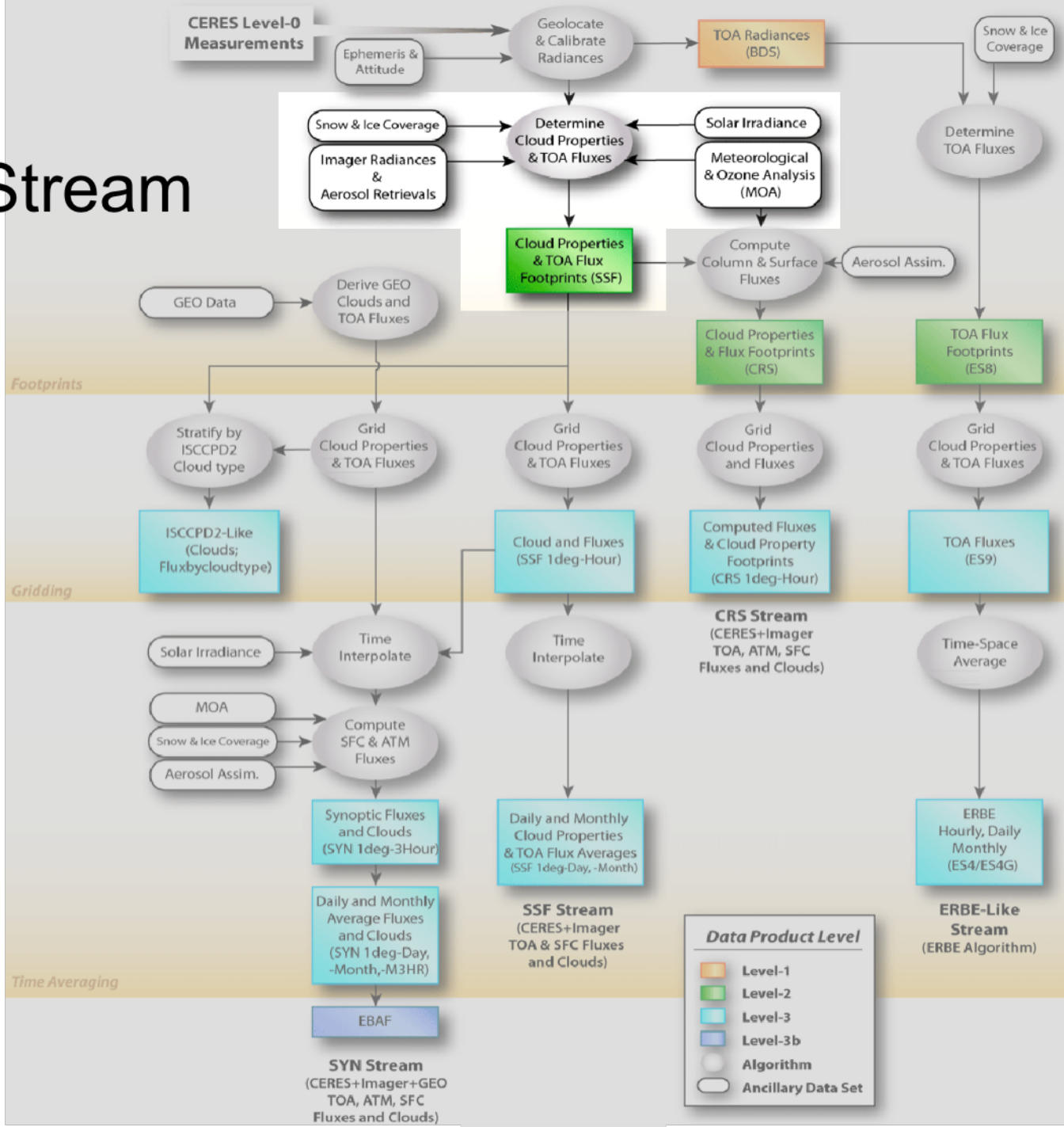
Edition 4 SYN1deg Stream: Completed July 2016

- 7.3.1P2, 7.3.1P3, 7.3.1P4
- 7.2.1P2
- 8.1P2

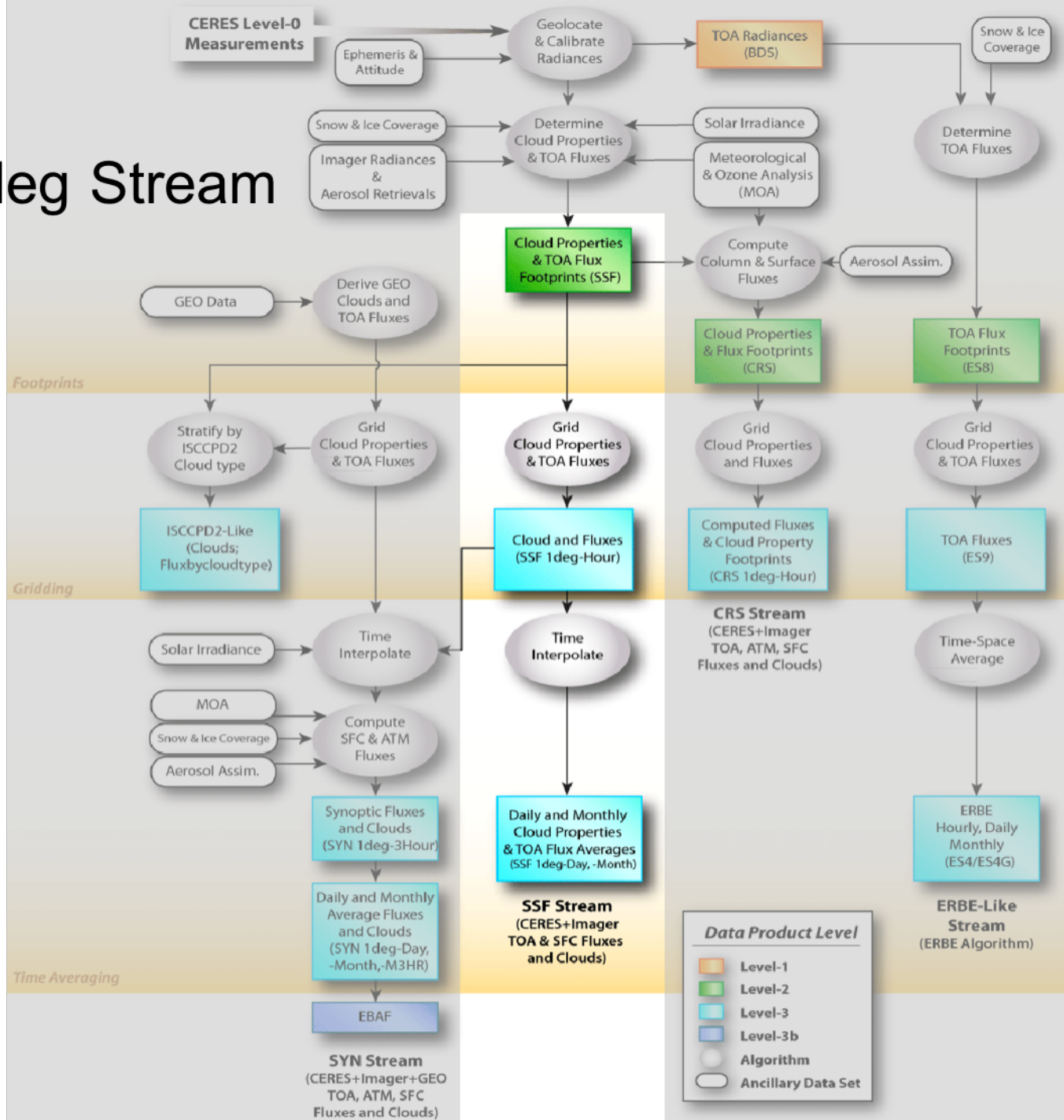
Edition 4 SSF1deg Stream: Completed August 2016

- 9.2P3, 9.3P3, 9.4P3
- 10.0P5

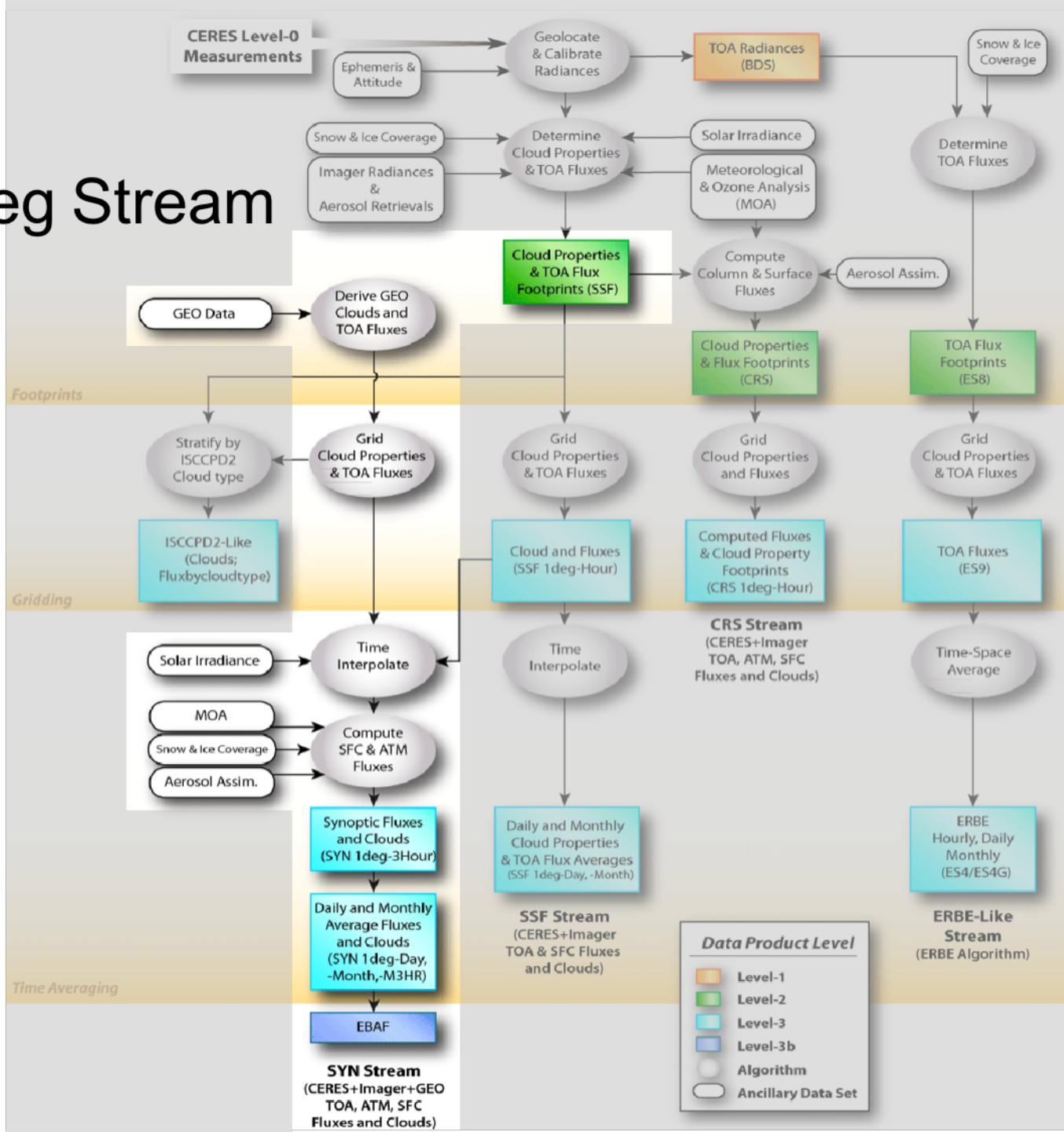
SSF Stream



SSF1deg Stream



SYN1deg Stream





PGE Migration Plan

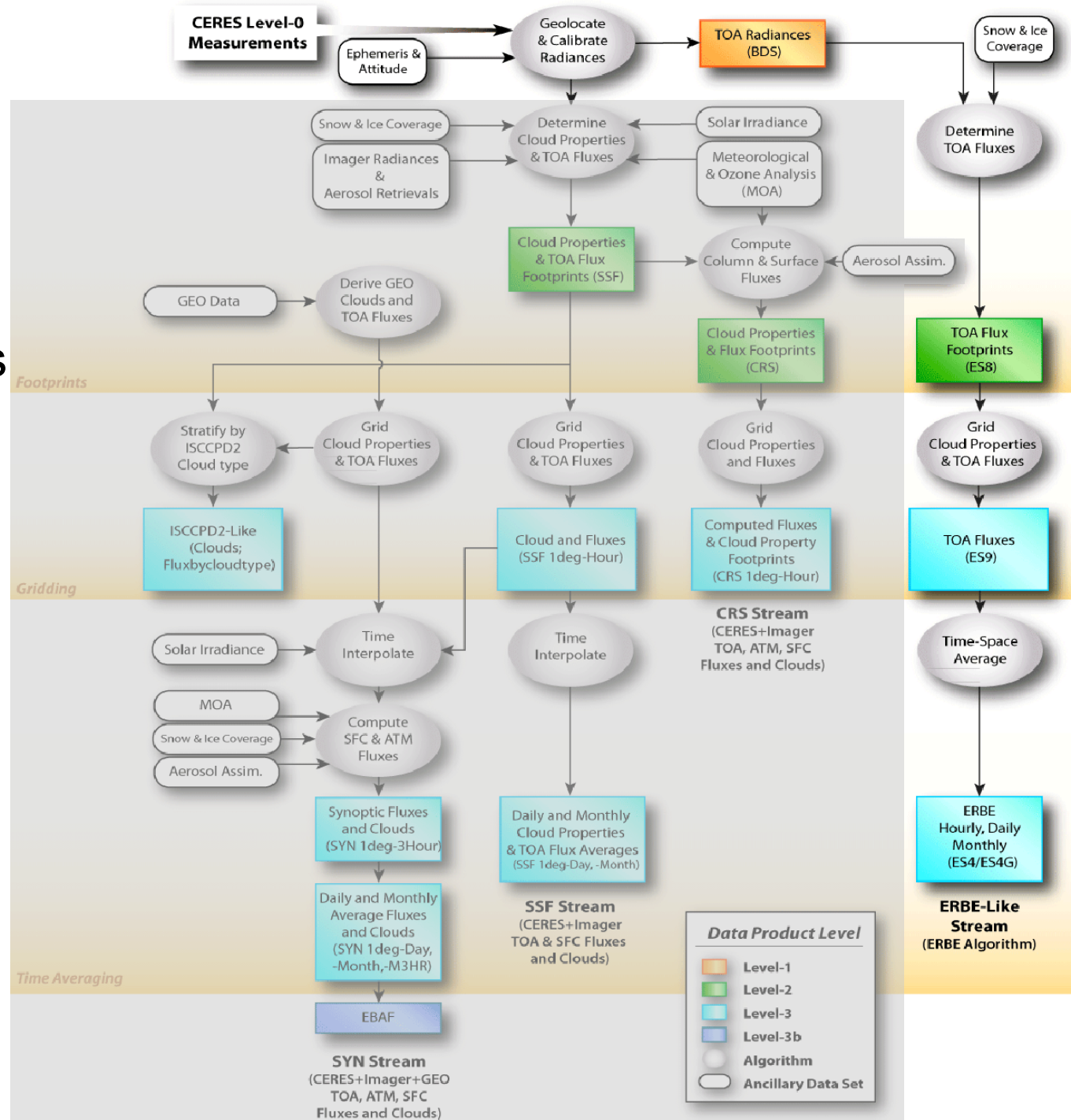
MOA / PMOA / SAH: Completed October 2016

- 12.1P2
- 9.1P2
- 5.0P3

Baseline1-QC, Ed1-CV, Ed1-NPP & Ed4 Instrument & ERBElike: Deliver January 2017

- | | | |
|---------|---------|---------|
| • 1.0P3 | • 2.2P1 | • 3.1P2 |
| • 1.2P1 | • 2.3P1 | • 3.1P1 |
| • 1.1P8 | • 2.3P2 | |
| • 1.4P2 | • 2.4P1 | |
| • 1.4P3 | | |

Baseline1-QC, Edition1-CV, NPP Ed1, & Edition 4 Streams





PGE Migration Plan

Edition 4 Cloud-Type-Hist: Deliver February 2017

- 9.0P6
- 9.0P7
- 9.0P8

Edition 1 NPP SSF Stream: Deliver March 2017

- 4.1-4.1P7
- 4.1-4.2P6
- 4.1-4.2P7
- 4.1-4.3P4
- 4.5-6.1P7

Snow & Ice Forward Processing PGEs: April 2017

- 4.1-4.0P2
- 4.1-4.0P3
- 2.1P1



Input Data Changes



Input Data Changes

NASA Global Modeling & Assimilation Office (GMAO) reanalysis

- G5.1 – input frozen stream for CERES used in Ed3 products since 2008
- Version terminated after February 2016
- G5.4.1 stream supporting all Ed4 reprocessing is now used in Ed3 products after Feb 2016

MODIS Collection 5

- In October MODAPS indicated all MODIS Collection 5 and Collection 5.1 products to be discontinued
- 3 month extension in place for MxD02, MxD03, MxD04 & McD43C1 products until January 2, 2017



Input Data Changes

National Snow & Ice Data Center (NSIDC) Near-Real-Time Ice and Snow Extent (NISE)

- NISE version 4 product primary input is 37 GHz channel on Special Microwave Imager and Sounder (SSMIS) on Defense Meteorological Satellite Program (DMSP) F-17 satellite
- Version 5 NISE product to start November 2016 with F18 SSMIS
- Post April NISE V4 data still available in archive



Upcoming Reprocessing



Planned Reprocessing

Ed4 and Ed1 NPP SSF1deg-Day Month

- Updated snow and ice directional models provided for SSF1deg averaging code
- Edition 4 Terra and Aqua SSF1deg-Day/Month already public
 - reprocess and re-release

Ed4 SYN1deg-1Hour/3Hour/Mhour/Day/Month

- Various issues discovered during EBAF Ed4 validation dictate need to re-run parts of this stream
- Processing order TSI->SYNI->SYN1deg
- SYNI code = most compute intensive (2-3 months/week)
- Plan to reprocess only TSI & SYN1deg but keep existing SYNI



Atlassian Tools: Jira & Bitbucket



Using JIRA & Bitbucket

JIRA SW ticketing utility in use by DMT

- SCCR high level workflow – 1 ticket per SCCR, 1 or more sub-tickets for delivery components and issue tracking
- Plan to migrate requirements logging into JIRA (vs existing manual approach)

Bitbucket Planned Use

- Web-based hosting service for Git SW revision control system
- ASDC hosted along with JIRA & Confluence
- Need for consistency leads to standardized use of Git via Bitbucket



Using JIRA & Bitbucket

Bitbucket: Implementation and Support

- Common approach across all subsystems: Individual projects per subsystem/group
- Repository per PGE, but expect some tailoring
- Transition support to be provided by DMT Systems group
- ASDC purchasing additional licenses
- Expect transition complete by January 2017

Ensuring Success

- Delivery process will involve cloning master branch code from repository
- Support from Working Group Leads paramount



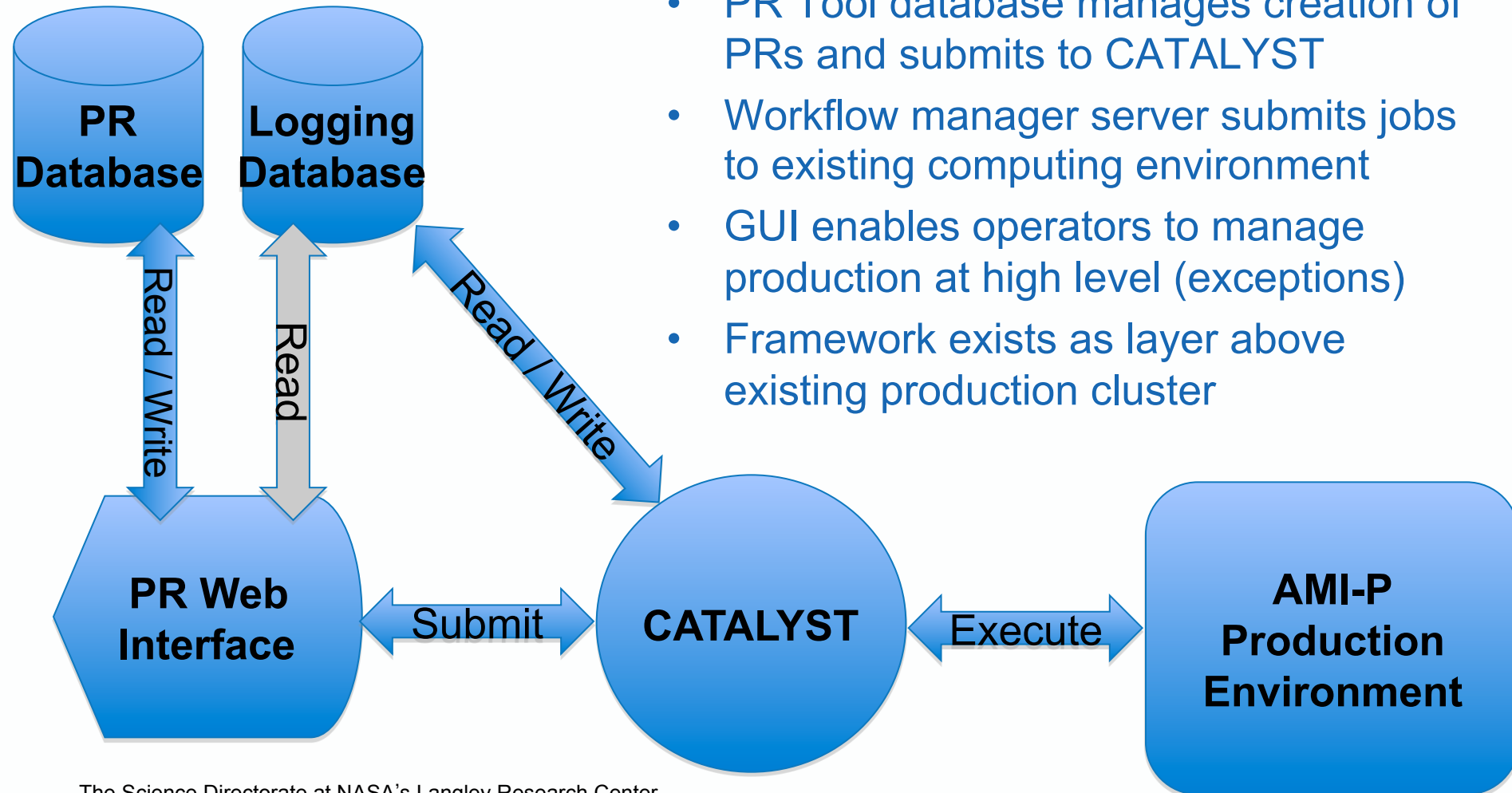
Backup Slides



Automation Framework

CERES AuTomAted job Loading sYSTem (CATALYST)

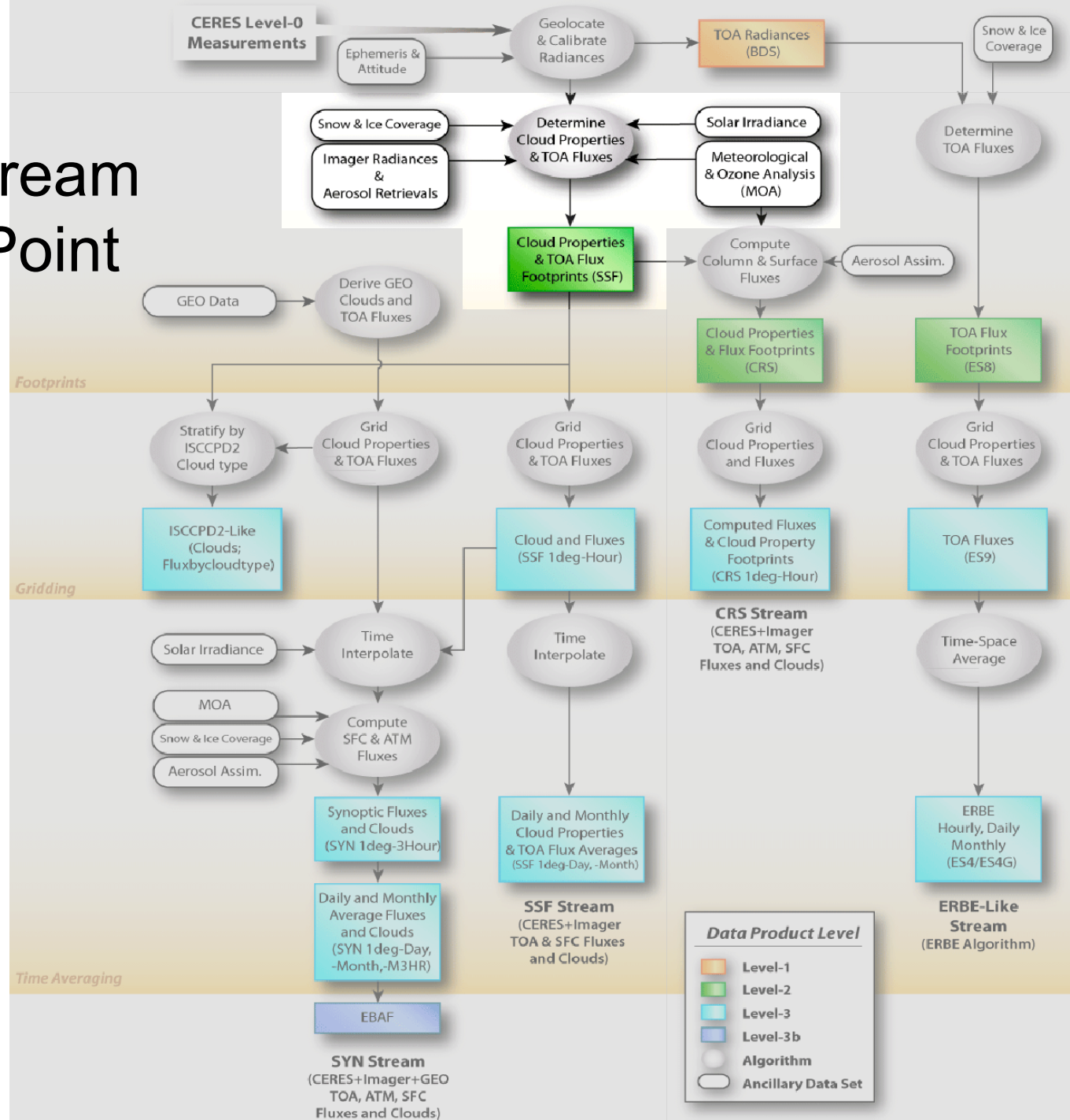
- PR Tool database manages creation of PRs and submits to CATALYST
- Workflow manager server submits jobs to existing computing environment
- GUI enables operators to manage production at high level (exceptions)
- Framework exists as layer above existing production cluster



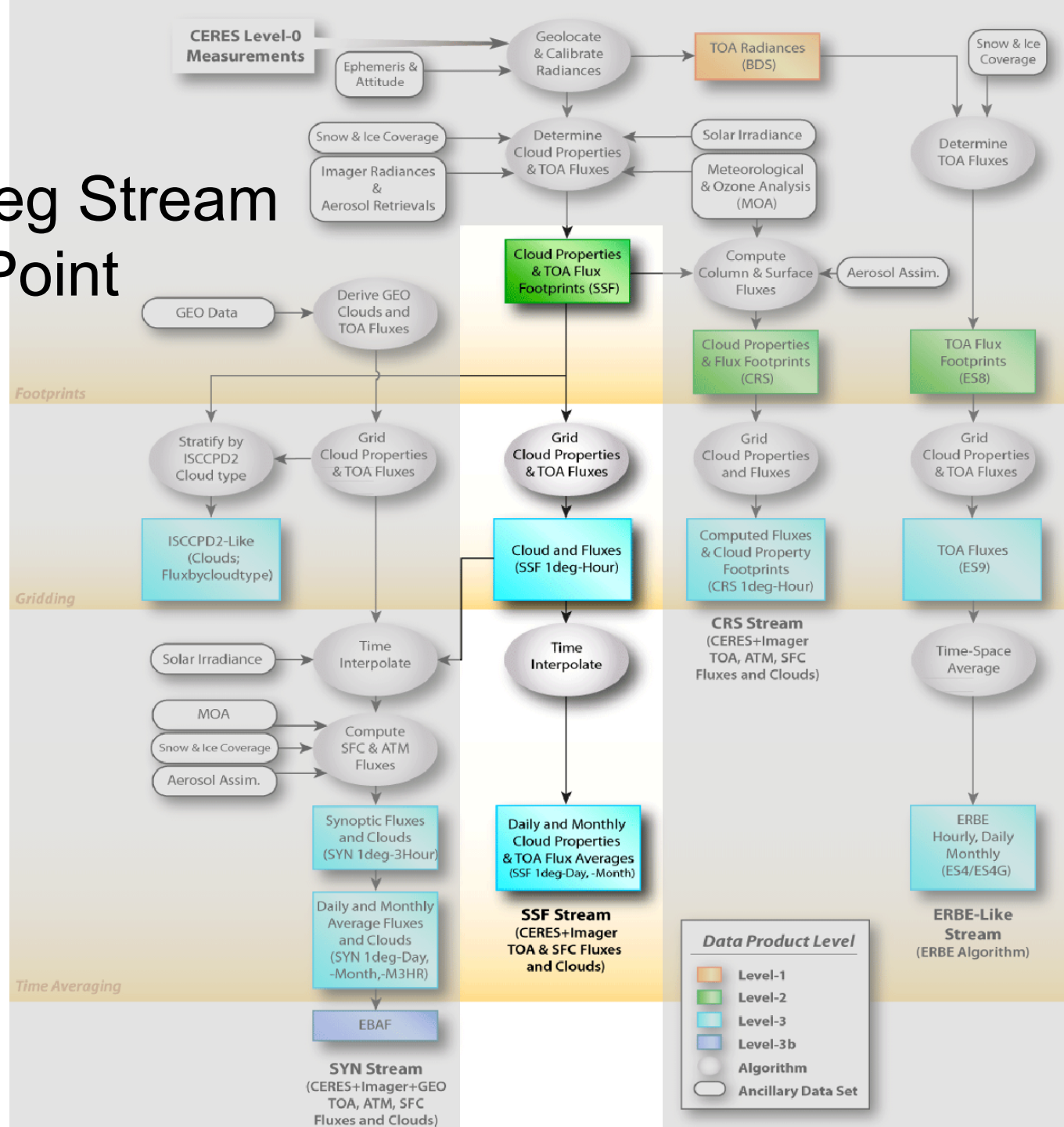
CATALYST PGEs By Stream



SSF Stream PowerPoint



SSF1deg Stream PowerPoint



SYN1deg Stream PowerPoint

